



Comparison of Intelligence Quotient in Early Treated Neonates with Congenital Hypothyroidism Compared to Healthy Children

Banafsheh Arad¹, Neda Esmailzadehha², Ali Homaei³, Farzaneh Rohani⁴, *Fatemeh Saffari⁵

¹Assistant Professor of Pediatric Nephrology, Children's Growth Research Center, Research Institute for Prevention of Non-Communicable Diseases, Qazvin University of Medical Sciences, Qazvin, Iran. ²PhD Student of Epidemiology, Student Research Committee, School of Health, Iran University of Medical Sciences, Tehran, Iran. ³Student of Medicine, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran. ⁴Associate Professor of Pediatric Endocrinology, Pediatric Growth and Development Research Center, Institute of Endocrinology and Metabolism, Iran University of Medical Science, Tehran, Iran. ⁵Associate Professor of Pediatric Endocrinology, Children's Growth Research Center, Research Institute for Prevention of Non-Communicable Diseases, Qazvin University of Medical Sciences, Qazvin, Iran.

Abstract

Background: Congenital hypothyroidism (CH) is one of the preventable causes of intellectual disability. The aim of this study was to compare intelligence quotient (IQ) in early treated children with CH and healthy children.

Materials and Methods: This cohort study was conducted on 78 early treated children with CH (patient group) identified in screening program in Qazvin, Iran, started in 2006 and 90 age and sex matched healthy children (control group). The Persian version of Wechsler scale was performed to assess IQ (full scale, verbal, performance). Full-scale score among 70 and 80 were defined as borderline IQ and score among 50 and 69 were defined as mild mental retardation. Data were analyzed using SPSS software version 16.0.

Results: Mean age was 6.57 ± 1.92 in patients group and 6.94 ± 1.57 in control group ($P > 0.05$). 46/78 of the patient group and 51/90 of the control group were male ($P > 0.05$). Mean full scale (87.01 ± 13.47 vs. 107.45 ± 10.49 ; $P < 0.001$), verbal (85.73 ± 13.54 vs. 106.86 ± 10.18 ; $P < 0.001$), and performance (89.44 ± 13.66 vs. 110.62 ± 9.82 ; $P < 0.001$) IQ in the patients group were significantly lower than the control group. 73.1% of the patients group had average and above IQ. Borderline IQ (14.1% vs. 0) and mild mental retardation (12.8% vs. 1.1%, $P < 0.001$) in the patients group were significantly higher than the control group ($P < 0.001$).

Conclusion: Based on the results, although mean IQ in treated children with congenital hypothyroidism was lower than the control group, 73.1% of them had normal IQ. Early diagnosis and treatment of congenital hypothyroidism with high doses of thyroid hormone as well as patients' compliance can prevent mental retardation.

Key Words: Children, Congenital Hypothyroidism, Intelligence Tests, Thyroid Hormones.

*Please cite this article as Arad B, Esmailzadehha N, Homaei A, Rohani F, Saffari F. Comparison of Intelligence Quotient in Early Treated Neonates with Congenital Hypothyroidism Compared to Healthy Children. *Int J Pediatr* 2020; 8(5): 11331-340. DOI: **10.22038/ijp.2019.43907.3650**

* Corresponding Author:

Fatemeh Saffari, Associate Professor of Pediatric Endocrinology. Address: Children's Growth Research Center, Children's Hospital, Shahid Beheshti Blvd., Qazvin, Iran. Fax: +98 28 33344088

Email: drfa_saffari@yahoo.com

Received date: Feb.23, 2016; Accepted date: Mar 22, 2016